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A Comprehensive Field and Laboratory Research Program on the Etiology and Epidemiology of Human Cancer.

Grant #714R1

Our program identifies within its total scope four principal interrelated research areas: Viral Studies, Epidemiologic Studies, Environmental Studies, Chemical-Viral Cocarcinogenesis Studies. We plan to work with several strains and species of animals including feral and laboratory mice and domestic cats and to use chemicals collected from Los Angeles environment and synthetic chemicals of known composition. In tissue culture the use of rodent and human cells that have been infected (productive or nonproductive) with C-type virus from a heterologous host (mouse and cat) will constitute advantageous types of indicator cells upon which to test this chemical-viral interaction. Assay systems include electron microscopy for the presence of virus particles, serologic techniques for detection of C-type viral gs and/or envelope antigen, biochemical studies for specific classes of RNA, COMUL and COCAL testing for covert infectious C-type virus and tests for virus transmissibility in appropriate animal hosts. Using these test systems we plan to compare the effect of environmental chemicals fron one area of L.A. to another and to correlate the laboratory observations with the epidemiologic field observations in the occurrence of specific types of cancer in man (and animal) within the same geographic areas. We also plan to study the effect upon C-type viral activation and cancer induction of other factors such as maternal age, number of gestations, hormones and drugs. We plan to work with the domestic cat for experimental studies upon chemical-viral oncogenesis as well as for natural history studies on the feline RNA tumor virus. We already have indications that human sarcoma cell lines, which have been cloned and propagated in tissue culture, can be successfully transmitted to cat fetuses in utero. This suggests that the cat fetus may be an unusually advantageous route for propagating human tumor cells; it presents an exciting opportunity to look for cat-human hybrid tumor cells or, conceivably, for rescue of a hypothetical defective human sarcoma genoms with the feline leukemia virus envelope.

Current Grant Level: $54,150.